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THE HEART OF BREED HEALTH

Parent Clubs Survey
Breeders & Owners

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DOG BREED HEALTH SURVEYS

CAPTURE A SNAPSHOT OF CANINE HEALTH

As sentinels of breed health, parent clubs turn to dog breeders and owners to gather information. Their ability to understand the changing demographics of disease incidence is pivotal to breed improvement and sometimes even breed survival. Here, we share how three parent clubs, working with their breed health foundations, use breed health surveys to compile meaningful data on the status of their breed's health.

Across the board, these parent clubs aim to gain knowledge that will enable them to make sound decisions in funding breed health research, choosing health and genetic screening tests and in developing health education. Their focus

is to help not only their breed but all dogs live long, healthy lives.

IMPROVING QUALITY OF LIFE FOR BERNERS

Bernese Mountain Dog breeder-owner-handler Tracey Keith of Wyndrift Bernese in Southern Illinois, a member of the parent club health committee and trustee of the Berner-Garde Foundation, reflects, "We have to look back at where we've been to see where we need to focus future research and learn whether we can breed away from health issues and concerns."

The Bernese Mountain Dog Club of America (BMDCA) has focused on promoting breed health since its



Bernese Mountain Dog

founding in 1968. The club's efforts to improve the health and quality of life for Berners is supported by conducting health surveys. Armed with information, the club is then prepared to determine relevant research to fund.

As BMDCA began developing its 2016-2017 breed health survey, the health committee set out to gather follow-up information from two previous surveys. Both were retrospective surveys; respondents reported on 1,293 dogs alive in 1996-1997 for the 1999-2000 survey, and on 1,063 dogs alive in 2002-2003 for the 2004-2005 survey.

Health issues flagged in these surveys along with a concerning average life span of 7 to 8 years of age helped to shape the 2016-2017 survey questions. Although both earlier surveys reported that the overall health of the breed was good or excellent in 89 percent of dogs, that statistic was tempered by cancer fatalities, the No. 1 cause of death in Berners. Histiocytic sarcoma, previously known as malignant histiocytosis, lymphoma, hemangiosarcoma, osteosarcoma, and mast cell tumors had the highest incidence.

Besides cancer, Berners had other health concerns:

- Hip dysplasia: 14 percent (2004-2005) and 12 percent (1999-2000) of dogs evaluated had some degree of hip dysplasia
- Elbow dysplasia: 24.5 percent (2004-2005) and 18 percent (1999-2000) of dogs evaluated had an elbow anomaly
- Hypothyroidism: 7 percent (2004-2005, 1999-2000) of dogs were hypothyroid
- Bloat: 4 percent (2004-2005) and 3 percent (1999-2000) of dogs had bloat episodes, with 89 percent (2004-2005) and 42 percent (1999-2000) requiring surgery, and 9 percent (2004-2005) and 23 percent (1999-2000) dying of bloat

HEALTH CHECK ON BERNERS

- Life span has increased to an average of 8.4 years of age, after many years of averaging around 7 to 8 years of age
- Cancer is the No. 1 cause of death
- Hip dysplasia affects 14 percent of Berners
- Elbow anomalies occur in 24.5 percent of dogs
- Fifty-nine percent of brood bitches have at least one C-section
- Eighteen percent of stud dogs have prostate problems



Reproductive concerns in bitches included: 59 percent (2004-2005) and 56.1 percent (1999,2000) had at least one cesarean section; 28.9 percent (2004,2005, 1999-2000) of those bred failed to conceive; and 32 percent (2004-2005) and 24.2 percent (1999-2000) had difficulty whelping. In stud dogs, 5 percent (2004-2005) and 7.2 percent (1999-2000) had abnormal sperm; 2 percent (2004-2005) and 3.6 percent (1999-2000) were sterile; and 18 percent (2004-2005) and 14.6 percent (1999-2000) were reported to have prostate problems.

Breed temperament questions, an addition to the 2004-2005 survey, indicated that 12 percent of all dogs were aggressive or had fear issues. In contrast, of the 1,293 dogs included, 616 dogs were considered confident and friendly, 303 were friendly, and 140 were confident. Very shy and timid behavior was reported in 129 dogs.

Leading the 2016-2017 survey with a committee was Carol Stephenson, PhD, RVT, a social psychologist from Loveland, Ohio, and trainer of Bernese under the kennel prefix of Buckeye Bernese Mountain Dogs. The previous surveys provided benchmarks for comparison, with the 2004-2005 survey largely being a repeat of the 1999-2000 survey.

Pat Long of Berwyn, Pennsylvania, a passionate Bernese Mountain Dog owner since 1988, a member of the BMDCA health committee, and past file manager and trustee of Berner-

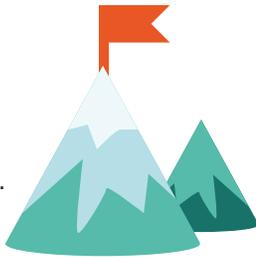
“We have to look back at where we’ve been to see where we need to focus future research and learn whether we can breed away from health issues and concerns.”

Tracey Keith, Bernese Mountain Dog breeder-owner-handler, BMDCA health committee member and trustee of the Berner-Garde Foundation

GETTING STARTED 8 TIPS ON CONDUCTING A BREED HEALTH SURVEY

ESTABLISH YOUR GOALS

Determine what you want to learn. For example, are you seeking a snapshot of the breed's current health status or do you want to gather information to compare to a previous health survey? If so, be sure the questions elicit responses that can be compared with previous results.



WRITE THE SURVEY

Query the health committee and knowledgeable breeders and owners about the survey questions. Once the survey is drafted, test it for clarity, relevance and understanding with a focus group of breeders and owners.



DECIDE WHETHER TO HIRE AN OUTSIDE EXPERT

Do any club members have the expertise to help develop the survey and interpret the results? If not, consider hiring an epidemiologist specializing in the study of diseases in populations to design the questions and interpret the results; this helps to assure that the results will be scientifically valid. Be sure to have a contract that specifies the payment agreement, deliverables and the expected timeframe for progress reports and survey completion. To reduce the cost of hiring an epidemiologist, explore partnering with other breeds that share similar concerns.



CHOOSE WHO WILL RECEIVE THE SURVEY

Compiling complete data entails sending the survey to a cross section of individuals. Parent club members, including breeders and owners, and pet owners will help provide diverse information.

SET STUDY TIMEFRAMES

Decide whether you want a retrospective study that examines dogs living five years ago regardless whether they are still living today or a current study of dogs presently alive. This enables you to assess younger dogs, though it will provide little information about causes of death in your breed.

DEFINE THE SCOPE OF THE SURVEY

Is the sole purpose of the survey to learn about breed health concerns? If you are wanting a more comprehensive report, add questions covering things like dogs' diets, feeding routines, spay and neuter status, coat colors, genetic testing, breeding history, and temperament. Note that the longer the survey, the less likely people are to participate. Consider breaking a longer survey into parts related to the topics.



CONSIDER DISTRIBUTION CHOICES

Printing and mailing a survey is time-consuming and expensive. An alternative is conducting an electronic survey using a tool such as SurveyMonkey® at a nominal fee that includes tabulating responses. Print surveys should be available to send out when requested.

PUBLISH THE SURVEY RESULTS



Breed health survey results are important news that should be disseminated as broadly as possible. Detailed articles analyzing the findings should be included in the parent club publication and on its website. The National Specialty is an excellent opportunity for a seminar presentation to discuss the findings paired with collecting DNA samples for banking in the breed's health repository. Consider videotaping the presentation for the website.

Garde, developed the earlier surveys. She used her experience as a computer programmer to write the 1999-2000 breed health survey after researching surveys done by other parent clubs and building a spreadsheet database to tabulate the responses.

Consulting with the late George A. Padgett, DVM, professor of veterinary pathology at Michigan State University, Long received his approval of the survey. It was distributed via *The Alpenhorn*, the parent club publication. Long tabulated the responses and turned over the results to Dr. Padgett for analysis. He presented the findings at the 2000 BMDCA National Specialty in Delevan, Wisconsin.

“Both of the early surveys confirmed we have a problem with the rare cancer histiocytic sarcoma,” Long says. “Although we knew cancer was a health issue in the breed, we didn’t realize how many kinds of cancers there were until the health surveys.”

“New in 2016-2017, we partnered with the American Kennel Club to broaden our survey distribution,” Dr. Stephenson says. “The AKC emailed a link to the survey to anyone who registered a Berner. As a result, we had 2,200 dogs represented, or nearly double the number of participants in the two previous surveys. This was the club’s first electronic health survey using SurveyMonkey®.”

The results are being compiled at Michigan State University, where a repository established by BMDCA and Berner-Garde houses DNA and tumor tissue as a resource for researchers. Founded in 1995, Berner-Garde is a nonprofit organization that works to improve the health of the breed through support of scientific research. Berner-Garde also maintains an electronic open database with information on 183,000 Bernese Mountain Dogs,

including health information on 50,000 dogs.

Early findings from the 2016-2017 survey show a slight boost in longevity over the past 12 years, with dogs living on average 8.4 years compared to the earlier reports of dogs living 7 to 8 years. Cancer continues to be the No. 1 cause of death, though dogs with lymphoma are often living up to a year post-diagnosis.

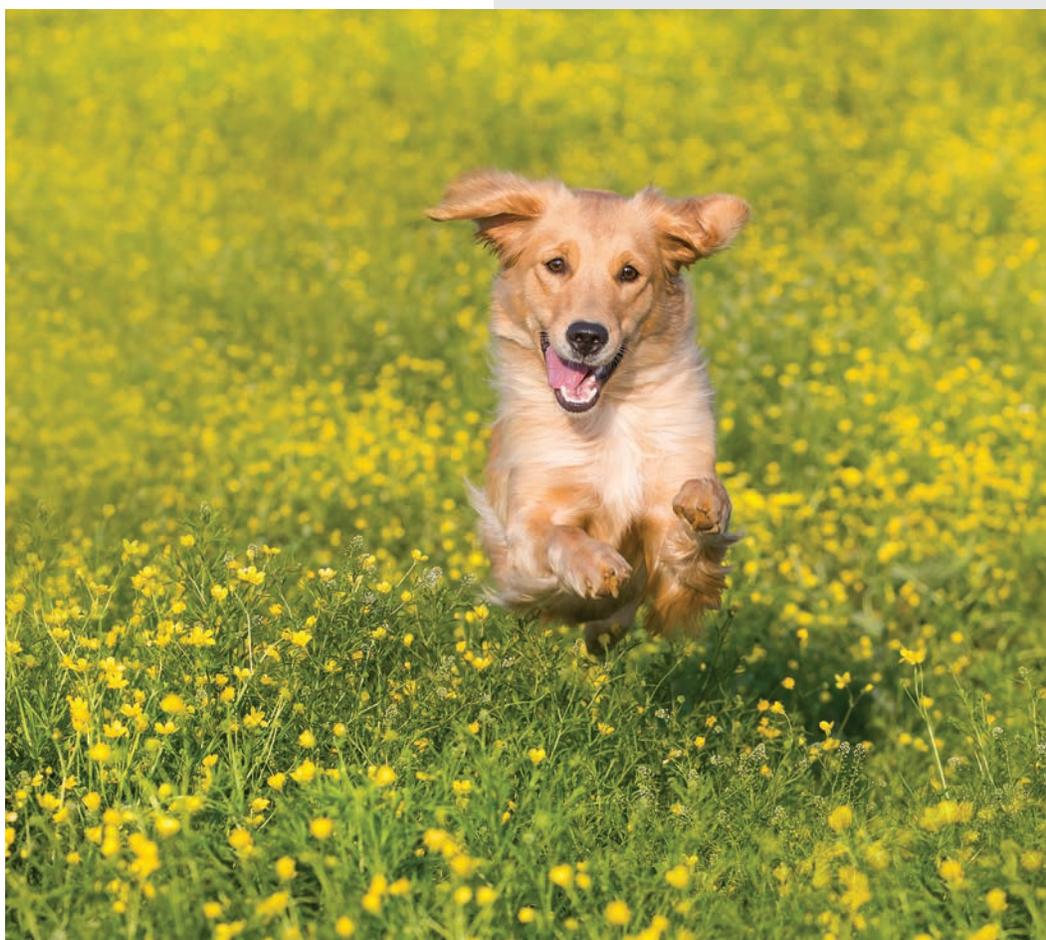
“That doesn’t sound like a long time, but it is in a dog’s life span,” Dr. Stephenson says.

IDENTIFYING RESEARCH TO FUND IN GOLDEN RETRIEVERS

A perception that longevity in Golden Retrievers may have decreased, and cancer increased, over the years warranted investigation, says Michael A. Lappin, DVM, owner of The Animal House veterinary clinic in

“Although we knew cancer was a health issue in the breed, we didn’t realize how many kinds of cancers there were until the health surveys.”

Pat Long, BMDCA health committee member and past file manager and trustee of Berner-Garde Foundation



Golden Retriever

“The 1998-99 survey really changed things. Although it is more than 20 years old, its findings remain valid. It laid the groundwork for millions of dollars of funded research that benefits Golden Retrievers and all dogs.”

Rhonda Hovan, GRCA research facilitator

1998-1999 GRCA NATIONAL HEALTH SURVEY REPORTS ON CANCER IN GOLDEN RETRIEVERS

- Cancer was the cause of death for 61.4 percent of Goldens that died between 1993 and 1998; however, life span remained at 11 years
- Goldens had a one-in-five lifetime risk for developing hemangiosarcoma, with a mean age of death from this cancer of 10.3 years (plus or minus 2.3 years)
- There was a one-in-eight lifetime risk for lymphoma, with a mean age of death from this cancer of 8.5 years (plus or minus 2.9 years)



Buzzards Bay, Massachusetts, and the DNA collection officer and former vice president of the Golden Retriever Foundation (GRF). “We knew we needed to gather facts to understand the current status of the breed in order to help guide the way forward,” he says.

Founded in 1938, the Golden Retriever Club of America (GRCA) works to advance and protect the interests of the breed through education, research and breed rescue endeavors. A \$100,000 bequest from the estate of the late Carol Buckman, a Golden Retriever lover, led to GRCA establishing the nonprofit Golden Retriever Foundation in 1997. Its mission was, in part, to advance understanding of diseases and genetic defects in dogs in general and Golden Retrievers in particular.

Half of Buckman’s bequest was donated to the newly founded AKC Canine Health Foundation and tagged for studies that involved Golden Retrievers. The remaining funds coupled with \$72,000 from the GRCA Committee to Assist Rescue were given to GRF as startup donations.

Seeking recommendations for research studies to support, GRCA turned to officials at the Canine Health Foundation, who suggested conducting a breed health survey. The idea was appealing because it would allow the club to learn about current health concerns

and also to use as a benchmark to measure future progress. GRCA and GRF reached out to Larry T. Glickman, VMD, MPH, PhD, professor (now emeritus) of comparative pathobiology at Purdue University, for assistance.

“Dr. Glickman knew how to structure the survey to produce results that could be analyzed for statistical significance, which is a measure of scientific validity,” says GRCA research facilitator Rhonda Hovan of Bath, Ohio. “He worked with us to be sure to include questions of special concern to breeders and owners, such as whether dogs treated with topical flea and tick preventives might show increased risk of cancer.”

The 1998-1999 GRCA National Health Survey, deemed the largest health survey ever done for a single breed at that time, was mailed to club members and posted on the GRCA website. Participants could submit surveys for up to five individual dogs living on Jan. 1, 1993. Purdue University tabulated information on 1,444 Golden Retrievers representing companion and breeding dogs, with many participating in obedience, conformation, agility, hunting, field trials, tracking, and search and rescue.

As Dr. Lappin suspected, the survey found that the mean age of death for Golden Retrievers diagnosed with hemangiosarcoma was 10.3 years and for those

diagnosed with lymphoma was 8.5 years. Cancer was the cause of death for 61.4 percent of Golden Retrievers that died between 1993 and 1998.

“This was a huge eye-opener because most breeders had no idea of the full scope of cancer in the breed,” says Hovan, the breeder of more than 60 conformation champions under the Faera prefix.

Explaining the results, Dr. Glickman said, “The easiest way to understand how likely a disease is to affect an individual dog is to express it as a lifetime risk. The survey found that Golden Retrievers have a one-in-two chance of developing a tumor in their lifetime. The lifetime risk for hemangiosarcoma is one-in-five and for lymphoma is one-in-eight.”

As to whether flea and tick preventives contribute to cancer risk, the survey found the opposite results. Dogs treated regularly with topical flea and tick preventives had lower rates of cancer than dogs that did not receive protection.

The breadth of research subsequently funded by GRF is impressive. The Golden Retriever Lifetime Study underway at the Flint Animal Care Center of Colorado State University in partnership with the Morris Animal Foundation is an example. One of the largest, most comprehensive prospective canine health studies in the U.S., its purpose is to identify nutritional, environmental, lifestyle, and genetic risk factors for cancer and other diseases in dogs.

The study, which began in 2012 and reached its capacity enrollment of more than 3,000 Golden Retrievers in 2015, will be used to launch many additional canine health studies. Thus far, research it has triggered includes:

- the effect of lifestyle and the gut microbiota on canine obesity
- understanding pigmentary uveitis, a cause of vision loss, discomfort and blindness in middle-aged and older Golden Retrievers



Golden Retriever

- the impact of dogs' ages at the time they are spayed or neutered on the risk of becoming overweight or obese and/or suffering orthopedic disease or injury
- the effect of inbreeding depression on reduced fertility

Another example is the Shine On Project, a 2016-2019 study of hemangiosarcoma at the University of Minnesota. Initiated by a \$100,000 donation from Razzle Dazzle Golden Retriever breeder Cathy Meddaugh of Arlington, Texas, Shine On is named for her Golden Retriever “Shine,” a retired Best in Show winner who died only days before turning 9 years old and 15 months after being diagnosed with hemangiosarcoma. When Meddaugh lost Shine’s littermate brother “Player,” a Best in Specialty Show winner, to the same aggressive cancer only months later, she made the donation.

GRF developed Meddaugh’s donation into a three-way project, supported by approximately \$450,000 in funding, in collaboration with two other breeds that also have high rates of hemangiosarcoma. The American Boxer Club Char-



Rough Collie

“Our philosophy is that ‘every Collie counts.’ We’ve come a long way, indeed, but we can’t let down our guard. Breeding healthy dogs requires diligence and a concentrated effort to work together for the good of our beloved Collie breed and dogs everywhere.”

Robette Johns, president of Collie Health Foundation

table Foundation and Portuguese Water Dog Foundation became partners on the research, which was administered and managed by the Canine Health Foundation.

“This 1998-99 survey really changed things,” Hovan says. “Although it is more than 20 years old, its findings remain valid. It laid the groundwork for millions of dollars of funded research that benefits Golden Retrievers and all dogs.”

COLLIE HEALTH SURVEY PROMOTES DNA COLLECTION

Collies have come a long way toward becoming a healthy breed. “I think our breed is in better shape today than in the old days,” says Gayle Kaye of Valley Center, California, breeder of Chelsea Collies and author of the award-winning books, “The Collie in America” and “A Century of Collies.”

A member of the Collie Club of America (CCA) and Collie Health Foundation (CHF) for more than 50 years, Kaye offers a cautious

perspective. “There are so many things that are not in our control, we must be careful and use genetic screening tests and tools available to us to stay on top on things.”

Staying on top of health conditions affecting the breed and promoting breed education were the goals when CCA established the nonprofit CHF in 1986. The oldest breed-specific health foundation in the U.S., CHF has provided more than \$1.2 million in research funding to support Collie and canine health-related grants. Among them are studies of progressive retinal atrophy (PRA), the multidrug resistance 1 (MDR1) mutation, cyclic neutropenia (grey Collie syndrome), and risk assessment for the autoimmune disease dermatomyositis (DMS).

Robette Johns of Oswego, Illinois, president of CHF and Collie breeder under the Row-Bar prefix, says, “Health testing and banking DNA for research combined with understanding the prevalence of health issues in Collies are the best means of preserving the breed for the future.”

To assess the health of the breed, CHF launched a breed-specific health survey in 2016 that combines the general health survey offered to parent clubs through the Orthopedic Foundation for Animals (OFA) with breed-specific questions developed by CHF. Respondents to the survey, which is still open, report on health conditions, reproductive issues, and coat color. Before this, Collie owners provided their dogs’ cause of death using the Health Instant Report on the CHF website. The idea behind the survey was to gather more details about the health of the breed.

CHF introduced the CHIC (Canine Health Information Center) DNA Banking Project using the breed health survey as a way to encourage Collie owners and breeders to submit their dogs’ DNA for research. Participants print out the survey

COLLIE HEALTH SURVEY RANKS MOST COMMON DISEASES

- 1) Eye diseases, including Collie eye anomaly, coloboma, retinal detachment, and retinal dysplasia
- 2) Epilepsy
- 3) Hypothyroidism
- 4) Cancer



and mail their responses along with their dogs' blood samples to OFA. As an incentive, CHF covers the \$20 fee to store the blood sample at CHIC, an all-breed DNA repository created and maintained by OFA, and reimburses owners up to \$125 for the collection and shipping of the blood sample. Thus far, 410 DNA samples have been banked.

"Blood samples are particularly needed from dogs and their relatives with genetic health conditions and veterans over 7 years of age," Johns says. "The challenge is to be sure that the information on individual dogs stays current. When a dog dies or is diagnosed with a health condition, it is important for the owner to report this."

Health testing is crucial as well. CHF members benefit from subsidies offered for health testing their Collies. When owners submit DNA cheek swab kits to Wisdom Health for its Optimal Selection™ Genetic Breeding Analysis panel test of more than 200 genetic

diseases, including key conditions in Collies, and for independent testing for DMS and PRA, CHF significantly defrays the costs. An agreement with Wisdom Health allows data to be funneled to CHF and to researchers at Clemson University who are studying DMS and epilepsy in Collies.

CHF also subsidizes the costs of submitting blood samples or cheek swabs to Washington State University for MDR1 mutation testing and to the University of Missouri for degenerative myelopathy testing. Hip and elbow radiography costs are defrayed when owners register the results with OFA and PennHIP.

"Our philosophy is that 'every Collie counts,'" Johns says. "We've come a long way, indeed, but we can't let down our guard. Breeding healthy dogs requires diligence and a concentrated effort to work together for the good of our beloved Collie breed and dogs everywhere." ■



Rough Collie

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